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垣曲盆地新发现的始爪兽类化石[1)]

黄学诗

(中国科学院古脊椎动物与古人类研究所 北京 100044)

摘要 记述了在垣曲盆地始新世地层两个层位中发现的始爪兽科化石 3 个种,其中包括 1 个新种——周氏路南兽(*Lunania zhoui* sp. nov.)。新种与属型种杨氏路南兽不同在于个体小、齿冠低、下前尖和下前脊及下斜脊更退化。

关键词 山西垣曲,中始新世,始爪兽科

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垣曲盆地是我国最早发现始爪兽科化石的地区(Zdansky,1930;Huang et al.,2001)。近年来的工作不仅为原有种类增加了新的材料,而且还发现了一个新种。因此本文予以简单记述。

奇蹄目 **Perissodactyla Owen,1848**

始爪兽科 **Eomoropidae Matthew,1929**

始爪兽属 Eomoropus **Osborn,1913**

小始爪兽 Eomoropus minimus **Zdansky,1930**

(图 1,1～3)

材料为右 P4(L ×W:8.3 ×10.5mm)一个(V 13134);残破的右 M1(L ×W:11.4 ×11.0mm)一个(V 13135);一右下颌骨残段带 m2(L ×W:11.3 ×7.5mm)及 m3 的三角座(V 13136)。3 块标本均采自山西省垣曲县河堤村附近中始新世河堤组任村段。

P4 呈宽稍大于长的矩形。前尖和后尖均粗大,前附尖和后附尖比前尖和后尖低小,但十分明显。上述 4 尖在外壁均表现为显著的肋(棱)。无次尖,原脊和后脊均与原尖相连。前者较粗壮,在唇侧连于前附尖和前尖之间的外脊;后者稍低弱,与后尖相接。无内、外齿带,但前、后齿带很发育,形成明显的围尖架和次尖架,尤以次尖架为宽。M1 呈方形,外壁和外侧齿尖均已不同程度地破损。原脊和后脊的内侧略向后倾斜,彼此平行。原小尖较为明显。前、后齿带尤其是前齿带较为发育,内齿带仅见于原脊和后脊之间谷口处。m2 磨蚀较重。三角座与跟座几乎等高近大,宽度亦相同。斜脊在下后脊内三分之一处与之相接,因而比较靠内。下后附尖仅留残迹,由于磨蚀重与后尖难以区分。

上述 3 块标本从其特点看,属始爪兽无疑。就相关牙齿大小比较和参照,比方齿始爪兽(*Eomoropus quadridentatus*)为小,而分别与胡长康(1959)、宗冠福等(1996)和石荣琳(1989)测量的小始爪兽数据相近。

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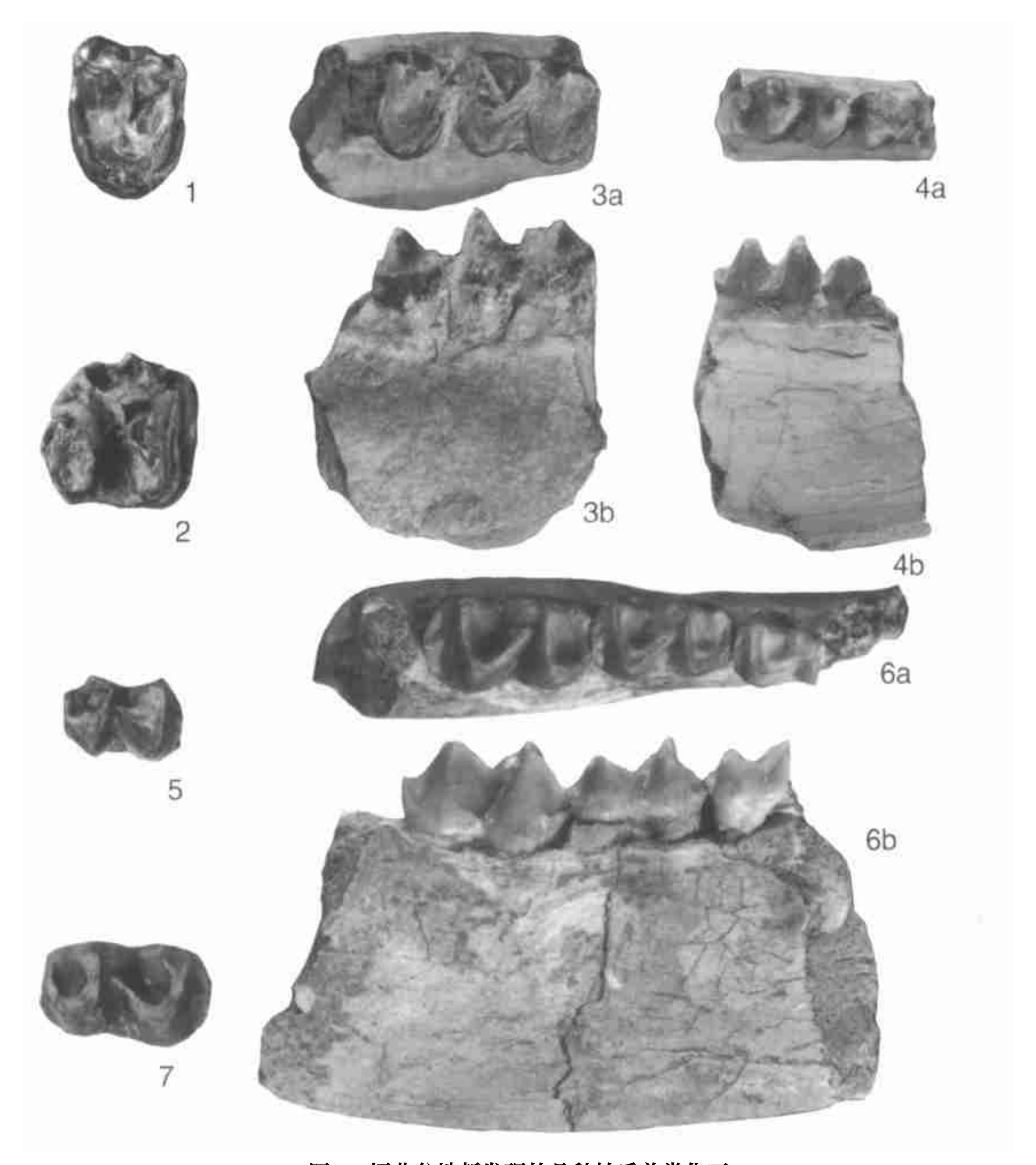


图 1 垣曲盆地新发现的几种始爪兽类化石

Fig. 1 New finds of eomoropids from Yuanqu Basin

1～3 **小始爪兽**(*Eomoropus minimus*) , ×2

1. **右** P4(right P4) (V 13134) ,**冠面观**(crown view) 2. **右上臼齿**(right M1) (V 13135) ,**冠面观**(crown view)

3. **右下颌骨残段附颊齿** m2 **及** m3 **之三角座** (Partial right lower jaw with m2 and trigonid of m3) (V 13136) 3a. **冠面观**(crown view) ; 3b. **唇面观**(labial view)

4～5 **周氏路南兽(新种)** (*Lunania zhoui* sp. nov.) , ×2

4. **残破的右下颌骨带颊齿** m2 **及齿冠破碎的** m1 (Partial right lower jaw with m2 and broken m1) (V 13139) 4a. **冠面观**(crown view) ; 4b. **唇面观**(labial view) 5. **左** m2(left m2) (V 13140) ,**冠面观**(crown view)

6～7 **小始爪兽相似种**(*Eomoropus* cf. *E. minimus*) , ×2

6. **右下颌骨残段附颊齿** m1～m2 **及** dp4 **之跟座** (Partial right lower jaw with m1～m2 and talonid of dp4) (V 13137) 6a. **冠面观**(crown view) ; 6b. **唇面观**(labial view)

7. **单个的左** m2(left m2) (V 13138) ,**冠面观**(crown view)

小始爪兽相似种　*Eomoropus* **cf.** *E. minimus* **Zdansky, 1930**

(图 1, 6～7)

材料　一右下颌骨残段附颊齿 m1～m2 及 dp4 之跟座(V 13137) ;单个的左 m2 (V 13138) 。

产地及层位　山西省垣曲县王茅乡郭家村火石坡;中始新世河堤组峪里段。

记述与比较　下颊齿从前至后逐渐增大,跟座比三角座稍宽。具后附尖,但斜脊不与后附尖相连。下次小尖也是从前到后逐渐增大。dp4 只保存跟座。斜脊与下次脊约呈 60°之 V 形,斜脊与下后脊中部之基部相接。m1 近长方形,具低而微弱的前、后齿带。下前脊十分低弱,自下原尖以弧形脊连于位置极低的下前尖。斜脊比在 dp4 中位置稍靠内。m2 形态与 m1 似,只个体稍大,下次小尖更发育。

小始爪兽的下颊齿以往发现很少。垣曲火石坡小始爪兽的材料与山东黄庄动物群以及本文上面记述的相应牙齿长度接近,但宽度明显小(表 1) ,故本文暂以相似种处之。

表 1　小始爪兽相似种的下颊齿测量与比较

Table 1　Measurements and comparison of lower cheek teeth of *Eomoropus* **cf.** *E. minumus*　(mm)

	dp4	m1		m2	
	宽(W)	长(L)	宽(W)	长(L)	宽(W)
V 13137	5.1	10.0	5.8	12.3	6.9
V 13138				12.4	7.3
84005 *				11.0	9.0

* 山东省博物馆标本编号(据石荣琳,1989) 。

路南兽属　*Lunania* **Chow, 1957**

周氏路南兽　*Lunania zhoui* **sp. nov.**

(图 1, 4～5; 图 2)

正型标本　一残破的右下颌骨附颊齿 m2 及齿冠已破碎的 m1 (V 13139) 。

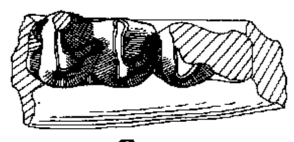
归入材料　一带部分颌骨的左 m2 (V 13140) 。

产地及层位　山西省垣曲县河堤村附近,中始新世河堤组任村段。

特征　一种比杨氏种(*Lunania youngi*)个体小、下臼齿齿冠低、下前尖和下前脊及斜脊更退化的路南兽。

词义　种名赠给已故周明镇教授,是他第一次记述了路南兽标本(1957) ,并确定其现在的分类位置。

记述与比较　V 13139 标本上的 m2 磨蚀较轻。下前尖很退化,位于下后尖的正前方,很小,位置极低。下原尖呈新月形,下后尖略呈圆锥状,两尖均高而粗壮,连接两尖的下后脊比较低弱,较垂直牙齿长轴。下次尖与下原尖、下内尖与下后尖大小相近,形状相似。下次脊和下后脊一样比较横向。斜脊与下前脊相似,非常低弱,连接下后尖的基部,相当



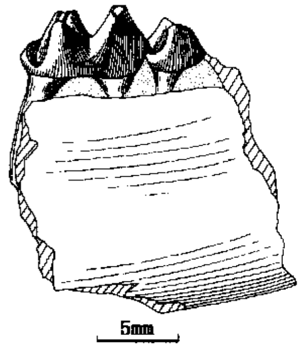


图 2　周氏路南兽(新种)的右下颌骨附颊齿 m2 及齿冠破碎的 m1 (V 13139)

Fig. 2　Right lower jaw with m2 and broken m1 (V 13139) of *Lunania zhoui* sp. nov.

上(upper) ,冠面观(crown view) ; 下(lower) ,唇面观(labial view)

靠内,约在下后脊的内 1/4 处,因而下次脊与斜脊间的夹角约等于或稍小于 60°,这个夹角与下后脊和下前脊间的夹角基本一致。下次小尖脊比较发育,低而明显,横向,形似宽的后齿带。m1 跟座之下颌骨体唇、舌面深度分别为 15.7 和 16.5mm。V 13140 的 m2 与 V 13139 的基本相似,只磨蚀重,牙齿相对显得宽一些,下次小尖脊稍弱些。

本文记述的两个 m2 的尖脊成对且形状相似、斜脊相当靠内、无下后附尖等牙齿的特点与形状,均与发现在云南路南盆地和丽江盆地(Huang,1999)的杨氏路南兽一致,所不同的是齿冠低、个体小(表 2),下前尖和下前脊及斜脊更退化,但下次小尖脊相对发育,因此它们与杨氏路南兽为同属不同种动物。这是路南兽类在云南省之外的首次报道。

表 2 周氏路南兽的 m2 测量与比较

Table 2 Measurements and comparison of m2 of *Lunania zhoui* **sp. nov.** (mm)

	V 103	V 9910	V 13139	V 13140
长(L)	10.0	10.0	7.9	8.6
宽(W)	6.0	6.0	4.8	5.5
Crown height of m2	6.0	5.5	4.3	4.0 *

注: V 103 和 V 9910 依宗冠福等,1996(V 103 and V 9910 after Zong et al.,1996);* 为近似值。

致谢 感谢张杰和杨明婉高级工程师为本文制作插图。

NEW EOMOROPID (MAMMALIA, PERISSODACTYLA) REMAINS FROM THE MIDDLE EOCENE OF YUANQU BASIN

HUANG Xue-Shi

(Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences Beijing 100044*)*

Key words Yuanqu Basin, Middle Eocene, Eomoropidae

Summary

Yuanqu Basin is the place where Chinese eomoropid fossils were found for the first time (Zdansky,1930). New finds collected in recent years add not only new material of old species but a new taxon. Two genera and three species, including a new one, from two horizons are described in the present paper.

Perissodactyla Owen, 1848

Eomoropidae Matthew, 1929

Eomoropus **Osborn, 1913**

Eomoropus minumus **Zdansky, 1930**

(Fig. 1, 1～3)

The material of this species includes a right P4 (V 13134), a right M1 (V 13135), and a broken right lower jaw with m2 and trigonid of m3 (V 13136), collected from nearby Hedi Village, Yuanqu County, Shanxi Province, Middle Eocene Rencun Member of Hedi Formation.

Eomoropus **cf.** *E. minumus* **Zdansky, 1930**

(Fig. 1, 6～7)

The species is represented by a right lower jaw with m1～m2 and talonid of dp4 (V 13137) and an isolated left m2 (V 13138) ,both found from Huoshipo near Guojiazhung Village ,Wangmao Town , Yuanqu County ,Middle Eocene Yuli Member of Hedi Formation. The lower molars are narrower than those of *E. minumus* found in the past.

Lunania **Chow,1957**

Lunania zhoui **sp. nov.**

(Fig. 1 ,4～5 ; Fig. 2)

Type A piece of right lower jaw with m2 and broken m1 (V 13139) .

Included specimen A left m2 (V 13140) .

Locality and horizon Nearby Hedi Village , Yuanqu County ,Shanxi Province ;Middle Eocene Rencun Member of Hedi Formation.

Diagnosis A species smaller than generic species *Lunania youngi*. Lower molar 's crown lower ,and paraconid ,paralophid as well as cristid obliqua more reduced.

Etymology The species name is for late Prof. Zhou Mingzhen who described *Lunania* for the first time and finally made the systematic position of the genus.

Description and comparison m2 paraconid is small and low ,situating in front of metaconid. Both the protoconid and metaconid are high and robust ,whereas the crest connecting the two cusps is weak and perpendicular to the longitudinal axis of the tooth. The hypoconid is similar to protoconid and entoconid to metaconid morphologically ,respectively. The hypolophid is transversely situated , like the metalophid. The cristid obliqua is similar to paralophid , lower , and links the base of metaconid ,more internally located. The hypoconulid crest situates transversely ,like wide posterior cingulum. The depth of horizontal ramus under m1 is 15. 7mm (labially) and 16. 5mm (lingually) , respectively.

The lower molar mentioned above resembles that of *Lunania youngi* found both in Lunan Basin and Lijiang Basin , Yunnan Province in following repects : nearly same morphology of relative cusps and crests ,more internally situated cristid obliqua and having no metastylid. But differs from the latter in having lower crown , more reduced paraconid , paralophid and cristid obliqua , and more developed hypoconulid crest. It is smaller than *L. youngi* in size. So the material found in Yuanqu Basin represents a new species of *Lunania*. This is the first report of the genus outside of Yunnan Provice.

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